

Pike's Peak, Colorado, 52, w., 9th; 72, w., 10th; 76, sw., 19th; 54, w., 22d; 56, nw., 23d; 72, w., 30th; 68, sw., 31st.
 Frisco, Utah, 50, sw., 10th.
 Galveston, Texas, 55, nw., 12th.
 Sandusky, Ohio, 53, w., 14th.
 Detroit, Michigan, 52, w., 14th.
 Grand Haven, Michigan, 52, n., 14th.
 Port Huron, Michigan, 50, sw., 14th.
 Saint Louis, Missouri, 52, sw., 14th.
 Buffalo, New York, 63, sw., 14th.
 North Platte, Nebraska, 60, s., 18th.
 Fort Canby, Washington Territory, 50, s., 27th.

LOCAL STORMS.

Atlantic City, New Jersey: light rain, with thunder and lightning, prevailed during the night of the 29-30th until 1 a. m., when the rain began falling very heavily and the electrical part of the storm became unusually violent. Hail-stones fell from 4 to 4.05 a. m., diameter one-half an inch. The total precipitation during the storm was 6.15 inches. The wind varied from ne. to nw., with a maximum velocity of twenty-five miles per hour from the north, at 11.30 a. m.

Block Island, Rhode Island: on the 30th light rain fell from 2 to 3.40 p. m., followed by high northeast winds, greatest velocity forty-two miles per hour. During the night the wind continued high and on the morning of the 31st, was blowing briskly from the southeast, backing to northeast, maximum velocity thirty-two miles per hour.

Boston, Massachusetts: rain fell during the greater part of the 30th, heavy in the afternoon and very heavy between 10 and 11 p. m. Large hail-stones fell from 10.30 to 10.45 p. m. The wind was from the northeast throughout the day, attaining between 9 p. m. of the 30th and 2.45 a. m. of the 31st the force of a heavy gale.

NAVIGATION.

STAGE OF WATER IN RIVERS.

In the following table are shown the danger-points at the various river stations; the highest and lowest depths for October, 1886, with the dates of occurrence, and the monthly ranges:

Heights of rivers above low-water mark, October, 1886.

[Expressed in feet and tenths.]

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River:</i>						
Shreveport, Louisiana.....	29.9	31	6.7	1	2.9	3.8
<i>Arkansas River:</i>						
Fort Smith, Arkansas.....	22.0	1	3.2	18, 19, 20	1.4	1.8
Little Rock, Arkansas.....	23.0	1	5.0	26, 27, 28	1.3	3.7
<i>Missouri River:</i>						
Yankton, Dakota.....	24.0	1, 2, 3	16.6	29, 30, 31	15.4	1.2
Omaha, Nebraska.....	18.0	1 to 5	7.0	31	6.2	0.8
Leavenworth, Kansas.....	20.0	4	6.2	19	4.9	1.3
<i>Mississippi River:</i>						
Saint Paul, Minnesota.....	14.5	30	2.7	10	2.0	0.7
La Crosse, Wisconsin.....	24.0	1, 2	5.4	15	4.0	1.4
Dubuque, Iowa.....	16.0	24	6.2	13	4.3	1.9
Keokuk, Iowa.....	14.0	28	4.5	14, 16, 17	3.2	1.3
Saint Louis, Missouri.....	32.0	30, 31	7.0	18, 19	6.3	1.3
Cairo, Illinois.....	40.0	7	7.7	28, 29	4.0	3.7
Memphis, Tennessee.....	34.0	9, 10	6.2	30, 31	3.8	2.4
Vicksburg, Mississippi.....	41.0	14	4.5	31	0.6	3.9
New Orleans, Louisiana.....	13.0	12	5.7	31	1.6	4.1
<i>Ohio River:</i>						
Pittsburg, Pennsylvania.....	22.0	1, 2, 3	6.3	14, 15	5.1	1.2
Cincinnati, Ohio.....	50.0	6	8.8	31	3.3	5.5
Louisville, Kentucky.....	25.0	7 to 10	5.0	27 to 31	2.7	2.3
<i>Cumberland River:</i>						
Nashville, Tennessee.....	40.0	1	2.4	28 to 31	0.6	1.8
<i>Tennessee River:</i>						
Chattanooga, Tennessee.....	33.0	29, 30	2.0	23 to 26	1.2	0.8
<i>Monongahela River:</i>						
Pittsburg, Pennsylvania.....	29.0	1, 2, 3	6.3	14, 15	5.1	1.2
<i>Savannah River:</i>						
Augusta, Georgia.....	32.0	1 to 4, 6 to 13	5.8	25	5.2	0.6
<i>Mobile River:</i>						
Mobile, Alabama.....		12	19.1	27	15.4	3.7
<i>Sacramento River:</i>						
Red Bluff, California.....		18	1.1	1, 15	0.3	0.8
Sacramento, California.....		20, 21	8.5	1 to 16	7.5	1.0
<i>Willamette River:</i>						
Portland, Oregon.....		1, 2, 3	2.8	6	-0.2	3.0
<i>Colorado River:</i>						
Yuma, Arizona.....		1	15.5	26 to 31	15.0	0.5

Owing to the low stage of water in the Mississippi and Ohio Rivers during October, considerable difficulty was experienced by steamboat navigators. After the 27th, travel on these rivers was practically suspended. On the 20th the steamer "Gus Fowler" ran aground above Mound City and did not get free until 4 a. m. of the 21st. The "Belle Memphis" was four days in making the trip from Saint Louis, Missouri, to Cairo, Illinois; the captain reports that she was aground several times and dragged the bottom of the river nearly the entire distance. The observer at Little Rock, Arkansas, reports that navigation was closed on the Arkansas River on the 11th on account of the low water. At Portland, Oregon, the Willamette River was lower on the 6th than it has been at any time since river observations have been taken.

HIGH TIDES.

Owing to the storm that prevailed in the Gulf of Mexico from the 9th to the 12th very high tides were raised along the Gulf coast on the latter date from Cedar Keys, Florida, to Corpus Christi, Texas. Along the coast of Louisiana and eastern Texas the tide was higher and more destructive to life and property than any that has occurred within several years. The notes given below, in reference to this storm and the accompanying high tide, are from the reports of observers:

Sabine Pass, Jefferson county, Texas: this village is located at the mouth of the Sabine River, which forms the boundary line between Texas and Louisiana, the town is elevated only four feet above the mean tide and is bounded by a swamp on the west and by Lake Sabine on the northeast. On account of the heavy storm that prevailed over the Gulf of Mexico on the 9th, 10th, and 11th the tide was unusually high at Sabine Pass on the 11th, although the wind was light. During the morning of the 12th the wind blew a gale from the northwest and at 2 p. m. the water of the Gulf began flowing through the town; the water continued to rise rapidly, and in less than two hours nearly every house in the town was moved from its foundations and the country for fifteen miles inland overflowed with salt water. The loss of life was great, over one hundred persons being drowned. Many miles of rice fields were destroyed and hundreds of cattle drowned. The village of Johnson's Bayou, in Cameron county, Louisiana, is about fifteen miles east of Sabine Pass, and is located on a ridge extending along the Gulf coast, ten feet above the mean tide; behind the town is an extensive swamp. The tide was unusually high throughout the 11th and morning of the 12th; at 4 p. m. the wind was blowing with hurricane force and the water from the Gulf flowed over Johnson's Bayou and twenty miles inland, drowning fifty persons and completely destroying the village. Along the coast from Johnson's Bayou to Sabine Pass, the whole country was flooded, completely destroying all crops and drowning hundreds of cattle and horses.

Mobile, Alabama: on the 12th the wind shifted from the northeast to southeast and blew hard, causing a very high tide in Mobile Bay. Several washouts occurred on the Louisville and Nashville Railroad between New Orleans and Mobile. The observer at Pensacola, Florida, states that high easterly winds prevailed during the 11th, with tide higher than has been known for twenty-one years.

Manatee, Manatee county, Florida: on the 12th the highest tide of several years occurred, doing slight damage to the wharves on the north side of the river.

New Orleans, Louisiana: on the 11th and 12th very high easterly winds prevailed, causing Lake Pontchartrain to fill and overflow with water from the Gulf, submerging the lower portions of the city and all the country in the vicinity of the lake.

High tides were also reported on the following dates:

Eastport, Maine, 1st, 2d, 3d.

Smithville, North Carolina, 1st, 2d, 3d.

Augusta, Georgia, 1st, 8th.

Sandy Hook, New Jersey, 27th.